

## **Circular Justice? An example of the Circular Economy Clashing with Environmental Justice in the United States.**

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While discussion of the circular economy concerning radioactive materials intensifies, there are few examples of it being applied in the United States (U.S.). That changed in 2021 when a uranium mill in Utah started accepting a rare earth rich residual mineral called monazite from a titanium and zircon mine in Georgia, U.S.A. This new project has raised concerns of stakeholders, primarily Native Americans living nearby that have long been opposed to the mill. The circular economy has run into the Environmental Justice movement. No new material is mined in this case, rather monazite recovered from the initial process is utilized. The uranium mill is processing the residual monazite primarily for its uranium content (a requirement of their license), but then additionally processing the material to produce a rare earth concentrate that is shipped and further refined in Europe into individual rare earth elements and products. While it is taking years for U.S. companies to stand up new rare earth mines and processing facilities, this uranium mill has gone from concept to production in less than two years. Uranium prices have not been conducive to production and the mill has relied on other practices to make ends meet, including using a circuit dedicated to processing “alternate feed” materials for uranium recovery for many years. They accept wastes or feedstocks from other projects to run through the mill to recover any uranium in the feed. The mill charges to take this material rather than paying for ore, the traditional business model. The mill is primarily regulated by the State of Utah. However, local Native American stakeholders who oppose the mill want the mill closed and remediated. They see this mill as a classic example of social and economic injustice. Recently, the company has established a \$1 million fund (U.S.) to support the local community. How these two competing forces of the circular economy and environmental justice will be addressed is critical to moving forward as many of these types of facilities are located in disadvantaged areas; others are located simply near the resource and not because of social factors. It is likely that new approaches will be required on all fronts to move forward with a circular economy that does not lead to more environmental justice situations; rather the ensuing projects must incorporate new thinking going forward.